British Columbia Plumbing Code

Change Process

Challenges / Amendments to the

British Columbia Plumbing Code

Advisory Committee Recommendations

for the

1990 B.C. Plumbing Code

August 1991

Building Standards Branch
Ministry of Municipal Affairs, Recreation and Culture
The Honourable Graham Bruce, Minister

BC
B88
D B7761
1991
c.3

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1990 B.C. Plumbing Code Challenges / Amendments to the B.C. Plumbing Code Advisory Committee Recommendations

Preface

This publication includes challenges and amendments to the recommendations of the British Columbia Plumbing Code Advisory Committee (P.C.A.C.). The challenges and amendments are from many sectors of the industry including such areas as construction, design, education, inspection and manufacturing.

Final voting by the P.C.A.C. will take place on October 17, 1991 at the Executive Inn Hotel, 7211 Westminster Highway, Richmond B.C. and a registration form is attached at the end of this booklet. There will be an opportunity for public debate on the proposals prior to final voting by the P.C.A.C. Challenges and amendments have been cross-referenced to the recommendations (contained in the original publication dated June, 1991)of the P.C.A.C. and have been divided into two blocks. The first block will comprise of proposals that have not been challenged and the second block will consist of the remaining proposals (see summary sheet).

The voting group will consist of eleven members of the P.C.A.C. The secretary for the P.C.A.C. is a non-voting member.

The public will have an opportunity for final comments on the block of proposals that have not been challenged in writing. This block of proposals could be accepted by the voting group in its entirety; if proposals within the block are challenged from the floor the voting group will cast their votes on each proposal which has been challenged. Voting by the P.C.A.C. will be done by a show of hands. Recommendations of the P.C.A.C. may be challenged but only amendments of a minor editorial nature will be considered. Each item in the second block of proposals (P.C.A.C. recommendations that have been challenged or amended) will be open for public debate and voting by the P.C.A.C. The voting group will vote to accept , reject amend (minor editorial amendments only) or forward to the Building Standards Branch for further study.

When attending the public Plumbing Code change forum on October 17, 1991, each participant should have a copy of the following:

-1985 B.C. Plumbing Code

-1990 Canadian Plumbing Code

-Change Proposals for the 1990 B.C. Plumbing Code, June 1991

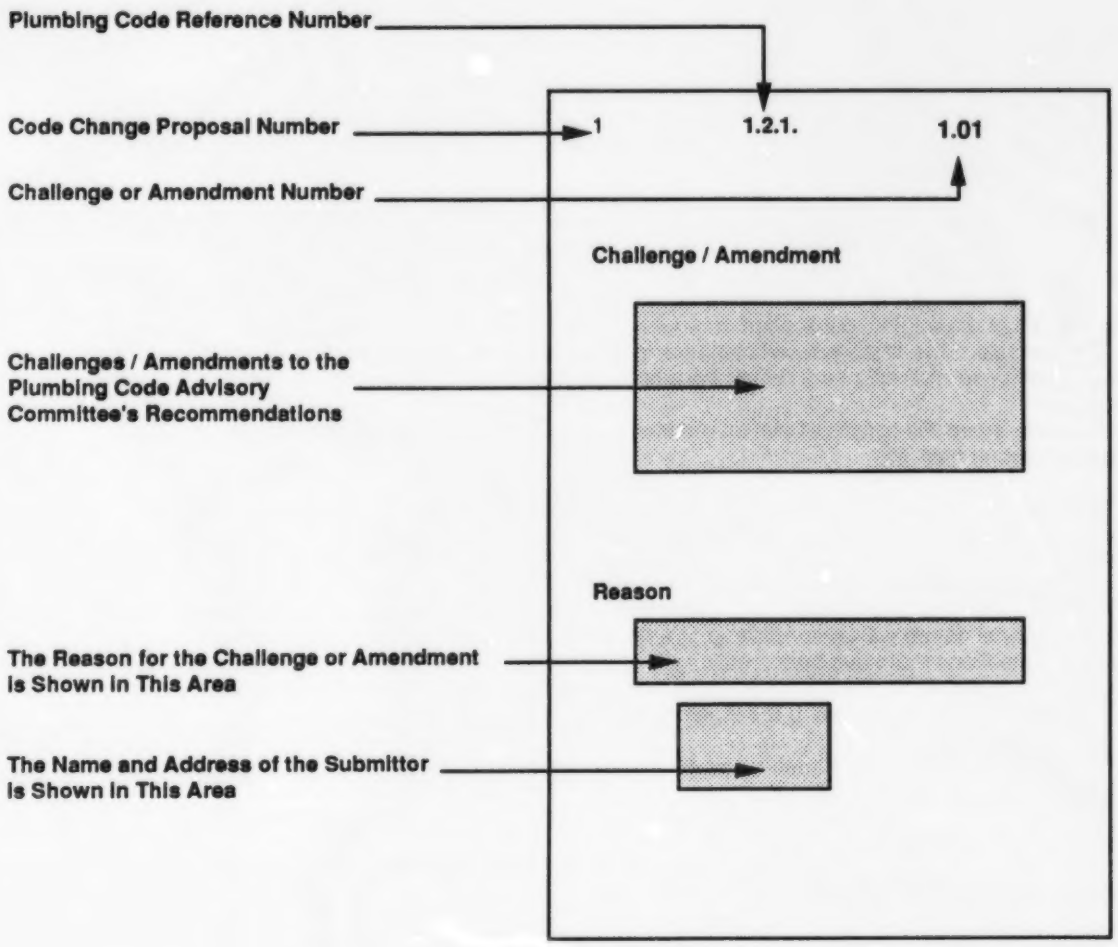
-Challenges / Amendments to the B.C. P.C.A.C. Recommendations for the 1990 B.C. Plumbing Code, August 1991

Please retain this document for use at the public Plumbing Code change forum in Richmond B.C.

For further information contact Douglas S. McDonald at the Building Standards Branch.The telephone number is (604) 387-4013 and the fax number is (604) 356-9019.

Plumbing Code Change Process

Legend


Plumbing Code Reference Number
Code Change Proposal Number
1
1.2.1.
1.01
Challenge or Amendment Number
Challenge / Amendment
Challenges / Amendments to the Plumbing Code Advisory Committee's Recommendations
Reason
The Reason for the Challenge or Amendment is Shown in This Area
The Name and Address of the Submittor is Shown in This Area

This Layout is Shown in Order to Provide an Explanation of how Information is Presented in the Following Pages. The Diagram Shows Challenges and Amendments to the Recommendations of the Plumbing Code Advisory Committee, the Reason for the Challenge or Amendment and the Name and Address of the Submittor.

Summary of Proposals Challenges and Amendments

Voting Group Options
Accept
Amend
Reject
Further Study

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23.02	49.01	80.01	90.01	113.03	152.01	184.01	

8 1.3 **Chall./Amend. Ref. No.** **8.01**

Challenge/ Amendment

Delete "or continuous piping".

Reason

The wording only tends to confuse and serves no direct purpose.

Submitted by: **John Elsdon**
2167 Oak Bay Avenue
Victoria, B.C.
V8R 1G2

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10 1.3.2. **Chall./Amend. Ref. No.** **10.01**

Challenge/ Amendment

DELETE "public premises" and SUBSTITUTE "premises to which the public are admitted."

Reason

There is a distinct difference between "public premises"; i.e. owned by the public and "premises to which the public are admitted"; i.e. a restaurant.

Submitted by: **John Elsdon**
2167 Oak Bay Avenue
Victoria, B.C.
V8R 1G2

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14 1.3.2. **Chall./Amend. Ref. No.** **14.01**

Challenge/ Amendment

Reject

Reason

This proposal was rejected by committee because it conflicts with 4.10.6.(2).

Submitted by: **Mr. John Masse**
3700 Willingdon
Burnaby, B.C.
V5G 3H2

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21 1.8.1.(2) **Chall./Amend. Ref. No.** **21.01**

Challenge/ Amendment

Amend proposed change as follows:
1.8.1.(2)
Except where in contravention with other existing applicable legislation, plumbing drawings and related documents for buildings within the scope of part 9 of the British Columbia Building Code shall be prepared by one of the following:

a) a designer certified as a plumbing tradesman, registered in the Province of British Columbia,

b) a designer certified as a technologist or technician by the Applied Science Technologists and Technicians of British Columbia,

c) a designer registered as a professional engineer in the Province of British Columbia, and

d) the registered home owner for the single family dwelling in which he/she resides.

Plumbing drawings and related documents for buildings within the scope of part 3 of the British Columbia Building Code shall be prepared by a designer registered as a professional engineer in the Province of British Columbia.

Reason

See attached sheets

Submitted by: **Mr. S. Ross Rettie, P. Eng.**
2210 West 12th
Vancouver, B.C.
V6K 2N6

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21 **1.8.1.(2)** **Chall./Amend. Ref. No.** **21.02**

Challenge/ Amendment

Modify item 1.8.1 (2) (c) to read:
A designer registered as an Applied Science Technologist or Certified Technician by the Applied Science Technologists and Technicians of British Columbia.

Reason

To ensure consistency with the ASTT Act (R.S.B.C. 1979, c. 16.1) and regulations.

Submitted by: **John Leech, A.Sc.T., C.A.E.**
200 Discovery Park
Burnaby, B.C.
V5G 4M1

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21 **1.8.1.(2)** **Chall./Amend. Ref. No.** **21.03**

Challenge/ Amendment

DELETE (e) and SUBSTITUTE:
"(e) The owner/resident of a building containing one dwelling unit only."

Reason

New wording conforms with Code language.

Submitted by: **John Elsdon**
2167 Oak Bay Avenue
Victoria, B.C.
V8R 1G2

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23 **1.9(1) & (2)** **Chall./Amend. Ref. No.** **23.01**

Challenge/ Amendment

REJECT the recommended
Change as follows
Reference No 1.11
Personnel performing installation and maintenance of plumbing systems shall:

a) Possess a British Columbia tradesman's qualification certification as a plumber

b) Be an apprentice supervised by a plumber possesing a BCTQ, or

c) Be the registered home owner of a single family dwelling in which he is residing.

Reason

I Les Brown have been working professionally as a plumber and gasfitter for 10 years plus; longer in British Columbia and Alberta. I Hold a T.Q. of gasfitter but have not possessed a plumbing T.Q. and I do not have the time or money to conduct myself through school and such.

Submitted by: **Les Brown**
#2 - 320 Mack Blvd
Mackenzie, B.C.
V0J 2C0

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23 **1.9 (1) & (2)** **Chall./Amend. Ref. No.** **23.02**

Challenge/ Amendment

Change #23
Amend.
(c) be registered in the land titles office as the owner who resides or intends to reside, in that single family dwelling.

Reason

To provide proper declaration for owner performing work in a new single family dwelling that is under construction and not occupied.

Submitted by: **Mr. C. Code**
6911 No. 3 Road
Richmond, B.C.
V6Y 2C1

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23 1.9(1) & (2) Chall./Amend. Ref. No. 23.03

Challenge/ Amendment

DELETE (c) and SUBSTITUTE:
"(c) be the owner/resident of the building containing one dwelling unit only and in which the work will be performed."

Reason

The proposed wording is consistent with Code language and more explicit.

Submitted by: **Mr. John Elsdon**
2167 Oak Bay Avenue
Victoria, B.C.
V8R 1G2

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30 2.1.7. Chall./Amend. Ref. No. 30.01

Challenge/ Amendment

Change #30
Amend.
2.1.7. The working pressure rating of a water service pipe shall not be less than the maximum public water main pressure as established by the authority having jurisdiction.

2.1.7.(2) - Delete.

Reason

To provide regulation governing the pressures on a water service pipe.

Submitted by: **Mr. Code**
6911 No. 3 Road
Richmond, B.C.
V8Y 2C1

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32 2.2.3. Chall./Amend. Ref. No. 32.01

Challenge/ Amendment

Change #32
Amend - 2.2.3. - Exceptions
Remove reference to "in single family dwellings"

Reason

A monolithic pour for showers and pools should not be restricted to single family dwellings.

Submitted by: **Mr. C. Code**
6911 No. 3 Road
Richmond, B.C.
V6Y 2C1

---

32 2.2.3. Chall./Amend. Ref. No. 32.02

Challenge/ Amendment

Site built shower drawing should be included in appendix of code change proposal package.

Reason

The proposed Appendix should have been included for evaluation.

Submitted by: **Mr. John Elsdon**
2167 Oak Bay Avenue
Victoria, B.C.
V8R 1G2

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37 2.4.3. **Chall./Amend. Ref. No.** **37.01**

Challenge/ Amendment

Change #37
Add sentence:
Where fittings have hub connections, only hub x hub 45 degrees bends shall be used.

Reason

The use of spigot to hub 45 degrees ells makes the radius less than a short 1/4 bend.

Submitted by: **Mr. C. Code**
6911 No. 3 Road
Richmond, B.C.
V6Y 2C1

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37 2.4.3. **Chall./Amend. Ref. No.** **37.02**

Challenge/ Amendment

The amendment does not address the use of street ell bends and accordingly does not maintain the intent of the original submission.

Reason

The original submission should be accepted and the current Code practice continued.

Submitted by: **Mr. John Elsdon**
2167 Oak Bay Avenue
Victoria, B.C.
V8R 1G2

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46 2.5.9. **Chall./Amend. Ref. No.** **46.01**

Challenge/ Amendment

Change #46
Leave:
2.5.9.(1)
(a)
(b)
(c)

Change:
(d)
(e)

Add:
2.5.9.(2) - for sewers outside of a building
(a)
(b)

Reason

We request amendment to better clarify the restriction of sewer class material to installations outside of a building.

Submitted by: **Mr. C. Code**
6911 No. 3 Road
Richmond, B.C.
V6Y 2C1

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49 **2.5.9.(1)(c)** **Chall./Amend. Ref. No.** **49.01**

Challenge/ Amendment

Change #49
States
2.5.9.(1)(c)
If amendment #46 is accepted this reference should read:
2.5.9.(2)(a) & (b)

Reason

Editorial correction only to previously accepted amendment.

Submitted by: **Mr. C. Code**
6911 No. 3 Road
Richmond, B.C.
V6Y 2C1

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50 **2.5.9. & 2.5.10** **Chall./Amend. Ref. No.** **50.01**

Challenge/ Amendment

AMEND last line to read:
"Transition cement is intended to be used for one joint only outside the building, underground and for joining ABS to PVC."

Reason

Clarification

Submitted by: **Mr. John Elsdon**
2167 Oak Bay Avenue
Victoria, B.C.
V8R 1G2

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63 **3.3.11.** **Chall./Amend. Ref. No.** **63.01**

Challenge/ Amendment

Proposed Change
Delete clause and add:
3.3.11(1) Types M, and DWV copper tube shall not be bent.

(2) Aluminum DWV shall not be bent.

Reason

We agree that hard temper Types M and DWV copper tube should not be bent. But drawn temper Types K and L tube can be bent successfully without difficulty. Is is unnecessarily restrictive and an economic penalty to prohibit all drawn temper copper tube from being bent. The accompanying sheet illustrates accepable bending practices.

Submitted by: **Mr. Arnold Knapp**
10 Gateway Blvd. Ste
Don Mills Ontario
M3C 3A1

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65 **3.3.9.** **Chall./Amend. Ref. No.** **65.01**

Challenge/ Amendment

Renumber proposal as article 2.9.11.

Reason

This proposal would be more appropriate as 2.9.11.

Submitted by: **Mr. John Elsdon**
2167 Oak Bay Avenue
Victoria, B.C.
V8R 1G2

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68 3.5 **Chall./Amend. Ref. No.** **68.01**

Challenge/ Amendment

DELETE the words "due to adverse temperature changes".

Reason

The wording "may be subject to condensation" will be difficult to administer without controversy. The additional wording would only increase the controversy.

Submitted by: **Mr. John Eledon**
2167 Oak Bay Avenue
Victoria, B.C.
V8R 1G2

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72 3.5.4. **Chall./Amend. Ref. No.** **72.01**

Challenge/ Amendment

Change #72
Amend to original submission.

Reason

Concern is expressed that it may be acceptable in install "heat tracing" only in exposed areas without any insulation.

Submitted by: **Mr. C. Code**
6911 No. 3 Road
Richmond, B.C.
V6Y 2C1

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73 3.5.6.. **Chall./Amend. Ref. No.** **73.01**

Challenge/ Amendment

Proposed change

Change: 3.5.6. - Copper tubing passing through concrete shall be protected from mechanical damage by being sleeved by an "acceptable" means.

Reason

To the best of our knowledge, there is no corrosion documentation to support the requirement that the copper tube be protected when passing through concrete. There are literature references, which we would be pleased to present, that show that such protection is unnecessary. For over 30 years, our Association has examined corrosion samples free of charge. We have never had samples submitted that showed evidence of exterior corrosion due to contact with concrete.

Submitted by: **Mr. Arnold Knapp**
10 Gateway Blvd. Ste.
Don Mills, Ontario
M3C 3A1

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79 3.7.1.(3) **Chall./Amend. Ref. No.** **79.01**

Challenge/ Amendment

Change #79
Add to end of sentence:
...authority having jurisdiction where the building will be located.

Reason

To avoid confusion that the authority having jurisdiction could be where the building is fabricated.

Submitted by: **Mr. C. Code**
6911 No. 3 Road
Richmond, B.C.
V6Y 2C1

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80 **3.7.2.** **Chall./Amend. Ref. No.** **80.01**

Challenge/ Amendment

Amend sentence (3) to read:
(3) If manufacturer indicates an air test in not recommended, an air test shall not be accepted.

Reason

This amendment was accepted by committee.

Submitted by: **Mr. John Masse**
3700 Willingdon
Burnaby, B.C.
V5G 3H2

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81 **4.2.** **Chall./Amend. Ref. No.** **81.01**

Challenge/ Amendment

Change #81 - 4.2.1.(1) (f)
DELETE reference to "such as clothes washers and bath tubs"
ADD to Appendix - indicate type of fixtures and explain suds pressure zones with propsed distances from base of stack.

Reason

To provide details of permitted "stack connections" rather than fixtures connected to stack.

Submitted by: **Mr. C. Code**
6911 No. 3 Road
Richmond, B.C.
V6Y 2C1

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81 **4.2.** **Chall./Amend. Ref. No.** **81.02**

Challenge/ Amendment

DELETE 4.2.1.(1) (f) and SUBSTITUTE:
"(f) The suds pressure zones of a soil or waste pipe serving clothes washers and/or bathtubs shall not serve for the connecting of other soil or waste pipes (See Appendix A)."

(See Drawing)

Reason

The amending wording, along with the proposed Appendix information, will clarify the intent.

It is also recomended that an exclusion be considered for buildings containing less than three storeys, providing one suite is not located above another suite.

Submitted by: **Mr. John Elsdon**
2167 Oak Bay Avenue
Victoria, B.C.
V8R 1G2

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81 **4.2.** **Chall./Amend. Ref. No.** **81.03**

Challenge/ Amendment

DELETE: Multi Storey

Reason

This is C.P.C. terminology, not B.C.P.C. terminology.

Submitted by: **Mr. John Masse**
3700 Willingdon
Burnaby, B.C.
V5G 3H2

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83 4.2.1. Chall./Amend. Ref. No. 83.01

Challenge/ Amendment

The term "food waste disposals" or "disposers" is synonymous with "garbage grinders" used elsewhere in the Code. It is suggested that a more appropriate term would be "garburators" or comminuters" for both references or at least the same terminology.

Reason

To achieve standardization of terms used in plumbing code.

Submitted by: **Mr. John Eledon**
2167 Oak Bay Avenue
Victoria, B.C.
V3R 1G2

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84 4.2.1. Chall./Amend. Ref. No. 84.01

Challenge/ Amendment

AMEND to read:
"All roof and paved areas shall drain to a storm drainage system, unless accepted."

Reason

The availability of a storm drainage system must be considered.

Submitted by: **Mr. Jchn Eledon**
2167 Oak Bay Avenue
Victoria, B.C.
V8R 1G2

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87 4.3. Chall./Amend. Ref. No. 87.01

Challenge/ Amendment

Appendix material must be provided to assist the users of the Code to discover the intent.

Reason

The determination of the "front of the tub" is not a simple matter.

Submitted by: **Mr. John Eledon**
2167 Oak Bay Avenue
Victoria, B.C.
V8R 1G2

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89 4.3.1. Chall./Amend. Ref. No. 89.01

Challenge/ Amendment

Sentence (3) change through urinals to read trough urinals.

Reason

Spelling.

Submitted by: **Mr. John Masse**
3700 Willingdon
Burnaby, B.C.
V5G 3H2

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90 4.3.5. Chall./Amend. Ref. No. 90.01

Challenge/ Amendment

Change #90
Include in amendment:
Clause 4.3.5. Service Water Heaters
A floor drain shall be provided adjacent to a service water heater.

Reason

It appears by the amendment reason noted that the floor drain (clause 4.3.5.) was accepted.

Submitted by: **Mr. C. Code**
6911 No. 3 Road
Richmond, B.C.
V6Y 2C1

---

90 4.3.5. Chall./Amend. Ref. No. 90.02

Challenge/ Amendment

DELETE and SUBSTITUTE:
"6.1.7.(10)
When located in a building, every hot water storage tank shall be installed within a corrosion resistant water tight pan."

"6.1.7.(11)
The pan
(a) shall be 50 mm larger in diameter than the tank and have side walls not less than 25 mm high.

(b) shall be drained by a pipe two sizes larger than the relief valve discharge pipe.

(c) drain shall be directly under the relief valve discharge pipe and shall discharge directly above a floor drain or other acceptable location."

Reason

The wording, as presented, does not correlate too well and uses inconsistent terminology.

Submitted by: **Mr. John Elsdon**
2167 Oak Bay Avenue
Victoria, B.C.
V8R 1G2

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95 4.6.4.(3) Chall./Amend. Ref. No. 95.01

Challenge/ Amendment

The word "shall" should be substituted with "may."

Reason

This proposal seemingly would require a vertical backwater valve on a floor drain even if the branch were protected by a backwater valve.

Submitted by: **Mr. John Elsdon**
2165 Oak Bay Avenue
Victoria, B.C.
V8R 1G2

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97 4.7.3. Chall./Amend. Ref. No. 97.01

Challenge/ Amendment

Change # 97
Amendment 4.6.3.(8) is acceptable as noted for sumps and catch basins.

Add: 4.7.3. Manholes
4.7.3.
(a)
A manhole shall have...to a miminum of 600 mm at the top.

(b)
Depths over 1.5 m shall have diameter increased by 150 mm for each .3 m of depth to a maximum 1.5 m diameter.

Reason

To provide safe access for workmen in manholes that are possibly 4.5 m or greater in depth. At present all amendments state a 1 m manhole is required regardless of depth.

Submitted by: **Mr. C. Code**
6911 No. 3 Road
Richmond, B.C.
V6Y 2C1

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97 4.7.3. **Chall./Amend. Ref. No.** **97.02**

Challenge/ Amendment

The amendment addressess in (b) "3 m" - should this not be 0.3 m"?

Reason

Submitted by: **Mr. John Eledon**
2167 Oak Bay Avenue
Victoria, B.C.
V*R 1G2

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108 4.10.9. **Chall./Amend. Ref. No.** **108.01**

Challenge/ Amendment

Change #108
Remove reference to "Combined Building Drain" from Clause 4.10.9.

Reason

To be consistent with sentence 4.6.1.(2) which prohibits the installation of a combined building drain.

Submitted by: **Mr. Ralph Kidd**
4949 Canada Way
Burnaby, B.C.
V5G 1M2

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113 5.2 **Chall./Amend. Ref. No.** **113.01**

Challenge/ Amendment

Change 4.2.1.(1) (e) B.C.P.C. (1985) margin note to read:
Connections to a circuit vent and to additional relief vents.

Reason

Clarification.

Submitted by: **Mr. John Masse**
3700 Willingdon
Burnaby, B.C.
V5G 3H2

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113 5.2 **Chall./Amend. Ref. No.** **113.02**

Challenge/ Amendment

Change 5.3.1.(4) B.C.P.C. (1985) to read:

5.3.1. (4)
A *soil or waste pipe* that is extended as a *continuous vent*, may serve as an additional *relief vent*, in accordance with Sentence 5.3.1.(3); provided that the *soil or waste pipe* is sized as a *wet vent* in conformance with Article 5.8.1. and shall be a minimum size of 2".

Reason

Clarification.

Submitted by: **Mr. John Masse**
3700 Willingdon
Burnaby, B.C.
V5G 3H2

---

113 5.2 **Chall./Amend. Ref. No.** **113.03**

Challenge/ Amendment

Change 5.3.1.(5) B.C.P.C. (1985) to read:
5.3.1.(5)
Connections to *circuit vents* and additional *relief vents* in accordance with Article 5.3.1.(3) shall conform to Clause 4.2.1.(1)(e).

Reason

Clarification.

Submitted by: **Mr. John Masse**
3700 Willingdon
Burnaby, B.C.
V5G 3H2

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117 5.4.1.(2) **Chall./Amend. Ref. No.** **117.01**

Challenge/ Amendment

Amendment:
Delete 5.4.1.(2) from 1985 B.C.P.C.

Reason

This amendment was accepted because when fixtures are added to stack vent it becomes a wet vent and is sized as such.

Submitted by: **Mr. John Masse**
3700 Willingdon
Burnaby, B.C.
V5G 3H2

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119 5.4.2.(4) **Chall./Amend. Ref. No.** **119.01**

Challenge/ Amendment

Amend
Delete: and the horizontal offset shall be sized to table 4.10.C.

Reason

This conflicts with 4.10.6.(2)

Submitted by: **Mr. John Masse**
3700 Willingdon
Burnaby, B.C.
V5G 3H2

---

119 5.4.2.(4) **Chall./Amend. Ref. No.** **119.02**

Challenge/ Amendment

Amend:
5.8.4.(1)(b) to read: Except for vent stacks, the hydraulic load...etc....

Amend:
Add 5.8.4.(1)(c): The hydraulic load to be considered when sizing vent stacks, shall be the load at point of connection to the soil or waste stack.

Reason

To allow different size vent stacks connected to the same soil or waste stack, depending on venting load.

Submitted by: **Mr. John Masse**
3700 Willingdon
Burnaby, B.C.
V5G 3H2

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139 **5.8.4.** **Chall./Amend. Ref. No.** **139.01**

Challenge/ Amendment

The wording of 5.8.3.(2) should be AMENDED to read:
"(2) The length of a continuous vent for the purpose of Table 5.8.C. shall be the developed length from the most distant soil or waste pipe connection on a wet vent to a vent stack or stack vent to the open air."

Change the "or" in (3) to "to".

Reason

The amendment in Sentence 5.8.3.(2) refers to "length from the wet vent" and not the "length from the most distant soil or waste pipe connection on the wet vent", as used in 5.8.3.(3).

It is necessary to define what part of the wet vent we must refer to.

Submitted by: **Mr. Jon Elsdon**
2167 Oak Bay Avenue
Victoria, B.C.
V8R 1G2

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146 **6** **Chall./Amend. Ref. No.** **146.01**

Challenge/ Amendment

Where a water supply serves both a sprinkler system and a distribution system, control valves shall be provided so that either system can be shut off independently.

Reason

The Plumbing Code does not address valving on combined water services.

Combined water services are installed by sprinkler and/or plumbing trades.

N.F.P.A. standard is used by sprinkler trades and associates in the fire protection industry.

Plumbing Code is used by plumbers and associates of the plumbing industry.

See appeal 833 May 22, 1986

If P.C.A.C. accepts the valve arrangement in the N.F.P.A. standard, the method should be referenced in the Plumbing Code.

Submitted by: **Mr. R.J. Mearns**
141 West 14th Street
North Vancouver, B.C.
V7M 1H9

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150 **6.1** **Chall./Amend. Ref. No.** **150.01**

Challenge/ Amendment

Change #150
Delete from the amendment ..."except for tub filler and a shower valve"...

Reason

We believe the shut offs on baths and showers to be of equal importance to other fixtures. Integral stops are available for all such fixtures at reasonable cost.

Submitted by: **Mr. C. Code**
6911 No. 3 Road
Richmond, B.C.
V6Y 2C1

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150 6.1 **Chall./Amend. Ref. No.** **150.02**

Challenge/ Amendment

The terminology "tub filter"(filler?) and "shower valve" should be replaced with "bath tub" and "shower".

Reason

To be consistent with the term "fixture" as used in the Sentence.

Submitted by: **Mr. John Elsdon**
2167 Oak Bay Avenue
Victoria, B.C.
V8R 1G2

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152 6.1.1.(2) **Chall./Amend. Ref. No.** **152.01**

Challenge/ Amendment

Retain original proposal #152.

Reason

The established practice of ensuring hot water from the left faucet and cold from the right should be continued for single handle faucets and faucets not installed on fixtures.

Submitted by: **Mr. John Elsdon**
2167 Oak Bay Avenue
Victoria, B.C.
V8R 1G2

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163 6.1.12 **Chall./Amend. Ref. No.** **163.01**

Challenge/ Amendment

Section 6.1.7.(2)
Every hot water tank shall be equipped ADD thermometer.

Reason

The consumer is entitled to know what temperature is being discharged from the hot water tank.

Health and safety of all consumers is not presently addressed in the Code in this regard.

Ministry of Municipal Affairs should be concerned to ensure the consumer is geting the desired hot water temperature discharge from the plumbing fixture.

Energy conservation by limiting overheating.

Submitted by: **Mr. J. Mearns**
141 West 14th Street
NorthVancouver, B.C.
V7M 1H9

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167 6.2 **Chall./Amend. Ref. No.** **167.01**

Challenge/ Amendment

In all buildings where two or more water distribution systems, one potable and the other non-potable, are installed each system shall be identified by color marking or metal tags as required in ANSI A13.1.

Reason

To provide for a uniform marking system

To promote greater safety by lessening the chance of error or inaction especially in times of emergency

On a number of projects where expansion has taken place as required, several different types of marking had been used for one nonpotable system and potable system has occurred due to different contractors for each project due to designer choice/change of management.

Submitted by: **Mr. R. J. Mearns**
141 West 14th Street
North Vancouver, B.C.
V7M 1H9

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171 **6.2.2.** **Chall./Amend. Ref. No.** **171.01**

Challenge/ Amendment

Cleaning of Systems
DELETE: The following reference from C.P.C. Article 6.2.8
A newly installed part of a potable water system shall be cleaned before the system is put into operation.
Add: Reference to AWWA C601-81.

Reason

This does not provide clarity as to what degree of cleaning is desired.

The Code should provide a reference for a standard which would meet the intent of the Code in the event that a request for a cleaned potable water system is required by the consumer, installer, or the A.H.J.

Flushing and chlorinating is provided in A.W.W.A. C601-81 A.S.P.E. Data Book 3 Date November 1988.

Submitted by: **R. J. Mearns**
141 West 14th Street
North Vancouver, B.C.
V7M 1H9

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174 **6.2.4.(1).** **Chall./Amend. Ref. No.** **174.01**

Challenge/ Amendment

Backflow caused by back-siphonage or back pressure from fire sprinkler or standpipe systems where water treatment is not added, shall be prevented by the installation of double check valve assembly or a dual check valve.

Reason

Dual check valves provide adequate protection in smaller residential fire sprinkler system.

Alarm checks and detector checks are not recognized by any certification or regulatory agency as backflow prevention devices. They are "system operating controls". Failures of these devices have also been documented allowing contaminants to enter the potable water distribution system, (see attachment 1). AWWA and BOCA and UPC are all mandating an approved backflow assembly to separate potable water and other systems, (see attachment 2).

Submitted by: **Mr. Michael Birks**
441 Hanlan Road
Woodbridge, Ontario
L4L 3T1

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175 **6.2.4.(2)** **Chall./Amend. Ref. No.** **175.01**

Challenge/ Amendment

Backflow caused by back-siphonage or back pressure from fire sprinkler or standpipe systems where water treatment is added, shall be prevented by the installation of a reduced pressure principle backflow preventer.

Reason

Alarm clocks and detector checks are not recognized by any certification or regulatory agency as backflow prevention devices. They are "system operating controls". Failures of these devices have also been documented allowing contaminants to enter the potable water distribution system, (see attachment 1). AWWA and BOCA and UPC are all mandating an aproved backflow assembly to separate potable water and other systems, (see attachament 2).

Submitted by: **Mr. Michael Birks**
441 Hanlan Road
Woodbridge, Ontario
L4L 3T1

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179 6.3 Chall./Amend. Ref. No. 179.01

Challenge/ Amendment

Proposed Change

Unless otherwise required by design of installation a maximum velocity of 5 feet per second shall be maintained

Delete:

6.3.4.(4) except for a single family dwelling containing 3 bathroom groups or less every part of a *water system* shall be sized in accordance with good engineering practice or in accordance with Table 6.3.C.

Reason

Literature on copper systems generally references a maximum velocity of 5 feet per second.
We would suggest that there be no exception, i.e.the proposed 6.3.4.(4) not be included. What is the basis for the arbitrary selection of 3 bathroom groups as the determining criteria?

Submitted by: **Mr. Arnold Knapp**
10 Gateway Blvd. Ste
Don Mills, Ontario
M3C 3A1

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179 6.3 Chall./Amend. Ref. No. 179.02

Challenge/ Amendment

Delete the exception.

Reason

The exclusions in this regulation are not warranted. The problems outlined by the original proposer are valid for all systems. Houses are being undersized - legally! An Appeal provided sizing for Pb out of necessity and should be regulated by Code.

Submitted by: **Mr John Elsdon**
2167 Oak Bay Avenue
Victoria, B.C.
V8R 1G2

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184 6.3 Chall./Amend. Ref. No. 184.01

Challenge/ Amendment

Where the static pressure may exceed 585 KPA, a pressure reducing valve with pressure guage shall be installed to limit the maximum static pressure at a fixture to not more than 585 KPA.

Reason

The health and safety of the consumer would be better addressed if they have knowledge of the water pressre in the water distribution system.

In the interest of safety to the consumer, cost should not become a factor.

Maximize the efficiency of municipal water distribution system.

Enhance understanding and awareness of water conservation.

Submitted by: **Mr. R. J. Mearns**
141 West 14th Street
North Vancouver, B.C.
V7M 1H9

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193 A. Chall./Amend. Ref. No. 193.01

Challenge/ Amendment

That the Plumbing Code provide for a uniform selection of standardized plumbing and piping related symbols as provided for in the A.S.P.E. Data Book 21, dated 1989.

Reason

Subsection 1.8

Requires plumbing drawing and related documents.

Provision of a uniform standard for submitted drawings will provide for less error in the design/review and installation of a plumbing system.

A.S.P.E. published document makes provision for governmental agencies, industry group and other clients who may have their own symbols.

B.C. Plumbing industry have indicated desire for uniform symbols for decades without any published results to date.

Submitted by: **Mr. R. J. Mearns**
141 West 14th Street
North Vancouver, B.C.
V7M 1H9

Appendix

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The Association of
PROFESSIONAL ENGINEERS AND GEOSCIENTISTS
of the Province of British Columbia

BRITISH COLUMBIA PLUMBING CODE

CODE CHANGE CHALLENGE/AMENDMENT

REASON/JUSTIFICATION & TECHNICAL SUBSTANTIATION FOR PROPOSED CHANGE

1. The Engineers and Geoscientists Act 1979

The Engineers and Geoscientists Act, 1979 (as amended August 1990) (Act) in Section 18 prohibits the practice of professional engineering except by, or under the direct supervision of, a professional engineer. The practice of professional engineering is defined under the Act as follows:

> "practice of professional engineering" means the carrying on of chemical, civil, electrical, forest, geological, mechanical, metallurgical, mining or structural engineering, and other disciplines of engineering that may be designated by the council and for which university engineering programs have been accredited by the Canadian Engineering Accreditation Board or by a body which, in the opinion of the council, is its equivalent, including the reporting on, designing, or directing the construction of any works that require for their design, or the supervision of their construction, or the supervision of their maintenance, such experience and

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1. The Engineers and Geoscientists Act 1979
(continued)

technical knowledge as are required by or under this Act for the admission by examination to membership in the association, and, without restricting the generality of the foregoing, shall include reporting on, designing or directing the construction of public utilities, industrial works, railways, bridges, highways, canals, harbour works, river improvements, lighthouses, wet docks, dry docks, floating docks, launch ways, marine ways, steam engines, turbines, pumps, internal combustion engines, airships and airplanes, electrical machinery and apparatus, chemical operations, machinery, and works for the development, transmission or application of power, light and heat, grain elevators, municipal works, irrigation works, sewage disposal works, drainage works, incinerators, hydraulic works, and all other engineering works, and all buildings necessary to the proper housing, installation and operation of the engineering works embraced in this paragraph; but the performance as a contractor of work designed by a professional engineer, the supervision of construction of work as foreman or superintendent or as an

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1. The Engineers and Geoscientists Act 1979 (continued)

> inspector, or as a roadmaster, trackmaster, bridge or building master, or superintendent of maintenance, shall not be deemed to be the practice of professional engineering within the meaning of this Act."

Design of plumbing drawings and related documents which fall within this defined scope can legally only be undertaken by, or under the direct supervision of a professional engineer. Other than specifying (a) drainage systems for waterborne wastes and storm water for buildings to the point of connection with public services or other acceptable disposal point, (b) venting systems, (c) water service pipes, and (d) water distribution systems, the British Columbia Plumbing Code does not specify a design boundary beyond which a professional engineer must take responsibility, as is specified in the British Columbia Building Code for structural design of all buildings except those within the scope of Part 9. Even design of buildings under the scope of Part 9 will frequently require design by a professional engineer for certain specific features or elements.

Design of facilities, as specified in the British Columbia Plumbing Code, in large or highrise buildings becomes quite complex and can directly relate to the public health/safety issue as well as major economic loss should a plumbing system failure occur. Certainly in buildings of any significant size

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1. The Engineers and Geoscientists Act 1979 (continued)

or sophistication, plumbing design is in fact professional engineering as defined by the Act and then, must be undertaken by, or under the direct supervision of, a professional engineer.

2. British Columbia Building Code

The British Columbia Building Code specifically defines designer as follows:

"Designer means the person responsible for the design."

Also under Part 4, Structural Design, sentence 4.1.1.2.(2) states "The designer shall be a professional engineer or architect as appropriate under provincial or territorial legislation.

Definitions, commonly used terms and understood meanings should be consistent in the Codes, particularly in two closely related Codes within the building industry.

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3. Letters of Assurance

The proposed Plumbing Code change is in direct conflict with the current draft of the Letters of Assurance which are very near completion.

The proposed amendment in the British Columbia Building Code to require the Letters of Assurance only exempts buildings under the scope of Part 9. The Letters of Assurance require that a professional engineer assures Code complyance in all the disciplines of professional engineering as defined under the Act.

4. "Designer Certified In Plumbing Engineering"

The Association of Professional Engineers and Geoscientists of B.C. (APEGBC) is the sole regulating authority of engineering in British Columbia as empowered by the Act. "Plumbing engineering" is not specifically identified as a separate branch or section and is an area of engineering that falls under Mechanical and Civil Engineering. The use of the term "plumbing engineering" implies that a person so-certified is licensed to practise engineering, or to hold himself out as licensed engineer in British Columbia. Unless that person is a professional engineer, this would be a contravention of Section 18 "Prohibition of Practice" of the Engineers and Geoscientists Act. Terminology which may contravene existing legislation, and which would

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4. "Designer Certified In Plumbing Engineering" (continued)

also cause confusion and misunderstanding, should not be used in regulations or Codes. In addition, blanket acceptance of foreign or out-of-province certification, over which there is no local control or participation, may place the government in a vulnerable position regarding liability for the public protection.

5. Owner/Resident Of A Single Family Dwelling

It would appear that the intent of the additional change proposed by the Advisory Committee is to allow a single family owner/resident the ability to change or add to the plumbing in his/her residence.

However, the proposed wording would permit such an owner/resident to design plumbing for any building.

The wording provided on the Code Change Challenge/Amendment would restrict the homeowner to designing the plumbing for only his/her single family residence.

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*BACKING TO BE INSTALLED BETWEEN STUDS TO SUPPORT LINER

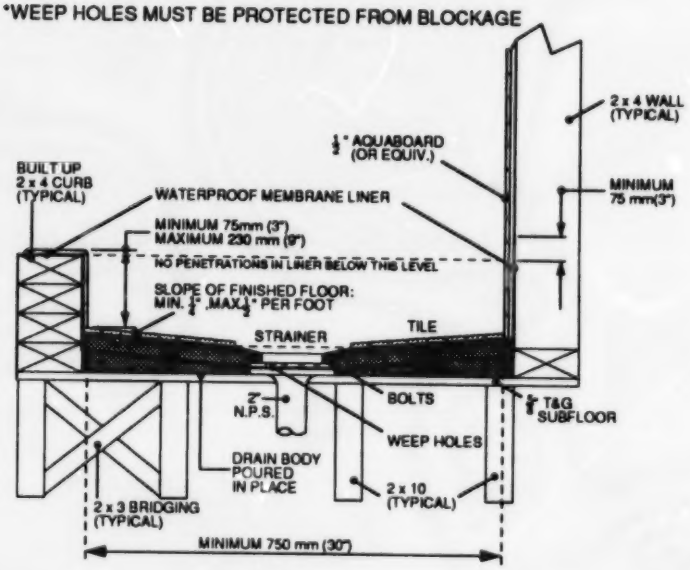
*LINER SHALL BE WATER TESTED TO THE FLOOD LEVEL RIM

*THE MINIMUM USABLE AREA SHALL BE 580 000 mm^2 (900 in.^{2}) WITH NO DIMENSION LESS THAN 750 mm (30")

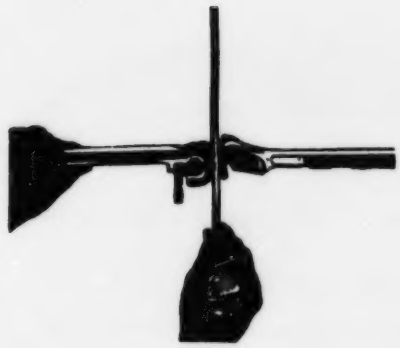
*A SHOWER DOOR SHALL NOT OPEN INTO THE SHOWER STALL

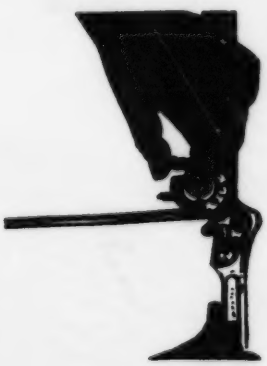
*NO MATERIAL THAT MAY BE HARMED BY MOISTURE SHALL BE USED INSIDE THE LINER

*WEEP HOLES MUST BE PROTECTED FROM BLOCKAGE



ON SITE CONSTRUCTED SHOWER BASE





Bending

Because of its excellent formability, copper can be formed as desired at the job site. Copper tube, properly bent, will not collapse on the outside of the bend and will not buckle on the inside of the bend. Tests demonstrate that the bursting strength of a bent copper tube can be greater than it was before bending. Because copper is readily formed, expansion loops and other bends necessary in an assembly are quickly and simply made if the proper method and equipment are used. Simple hand tools employing mandrels, dies, forms, and fillers, or power-operated bending machines, are used.

Both annealed tube and bending-temper tube can be bent with hand benders. The proper size bender for each size tube must be used. Usually the size of the tool corresponds to the nominal outside diameter of the tube, not the standard tube size. For a guide to the typical bend radii, see Table 20, for both machine bending and bending by hand using circular wooden discs.

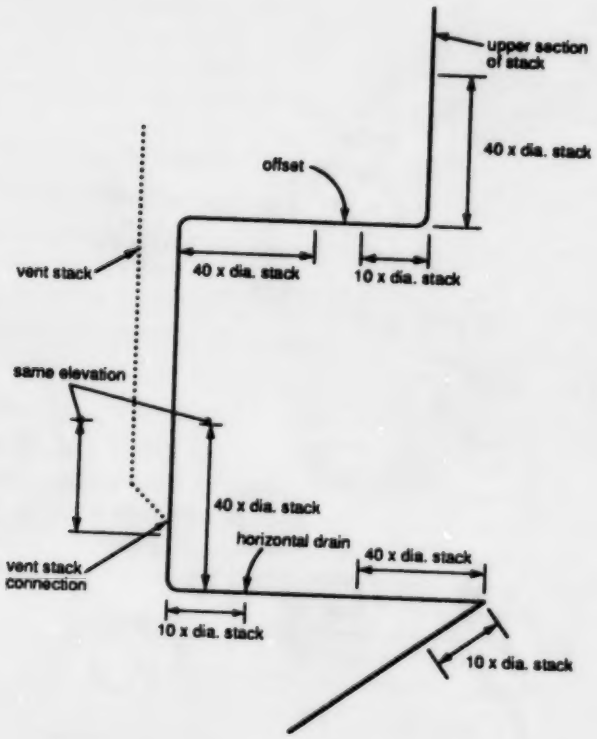
The procedure for bending copper tube with a lever-type hand bender is illustrated. (A) With the handles at 180° and the tube-holding clip raised out of the way, insert the tube in the forming-wheel groove. (B) Place the tube-holding clip over the tube and bring the handle into an approximately right angle position, engaging the forming shoe over the tube. The zero mark on the forming wheel should then be even with the front edge of the forming shoe. (C) Bend by pulling the handles toward each other in a smooth, continuous motion. The desired angle of the bend will be indicated by the calibrations on the forming wheel. (D) Remove the bent tube by pivoting the handle to a right angle with the tube, disengaging the forming shoe. Then release the tube holding the clip. Of course, if the manufacturer of the tube bender has special instructions regarding his product, such instructions should be followed.

table 20 Bending guide for copper tube

Tube Size, Inches	Tube Type	Temper	Minimum Bend Radius, Inches	Type of Bending Equipment
¼	K, L	Annealed	¾	Lever type
⅜	K, L	Annealed	1½	Lever or gear type
			3	None; by hand*
	K, L	Drawn	1¾	Gear type
½	K, L	Annealed	2¼	Lever or gear type
			4½	None; by hand*
	K, L	Drawn	2½	Gear type
⅝	K, L	Annealed	3	Lever or gear type
	K		4½	None; by hand*
	L		6	None; by hand*
	K	Drawn	3	Gear type
	K, L		4	Heavy-duty gear type
1	K, L	Annealed	4	Gear type
			7½	None; by hand*
1¼	K, L	Annealed	9	None; by hand*

*When bending by hand, without the use of bending equipment, a circular wooden disc is used. The radius of the disc should be about ¼ to ½ inch less than the minimum bend radius shown.

A-4.2.1.(1)(f) ***Suds Pressure Zones***



ATTACHMENT 1

No. 07-S

Dual Check Backflow Preventer
For Residential Fire Sprinkler Systems

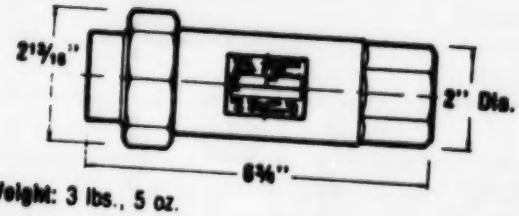
Straight line poppet type construction minimizes pressure drop and provides smooth flow characteristics. It is not adversely affected by normal line pressure surges, will not cause water hammer and operates without chatter or vibration. It can be installed horizontally or vertically.

- **Replaceable seat check modules**

Designed to comply with ANSI/ASSE Standard 1024.
CSA Certified to Standard No. B64.6
Complies to NFPA Standard 13D for flow requirements to residential fire sprinklers (3 heads).

Size 1" - with union inlet connection.

Maximum pressure 175 PSI
Minimum pressure 10 PSI
Working temperature 33°F to 140°F.
Maximum recommended flow 50 GPM



Weight: 3 lbs., 5 oz.

ATTACHMENT 1.

CITY OF EDMONTON CONTAMINATION INCIDENCES

HAZARD CLASSIFICATION

Severe

A cross connection or potential cross connection involving any substance in sufficient concentration to cause death, spread disease or illness, or contain any substance which has a high probability of causing such effect.

Moderate

A cross connection or potential cross connection involving any substance which has a low probability of becoming a severe hazard and would constitute a nuisance or be aesthetically objectionable if introduced into the domestic water system.

Minor

A cross connection or potential cross connection which has a low probability of becoming contaminated with any substance.

CONTAMINATION INCIDENCES

Type of Hazard	Minor	Moderate	Severe
Air Conditioners			1
Black Iron Pipe	8		
Fire Systems		8	
Heating and Cooling Systems			5
Pressure Washers		2	1
Process Water Pressure Pumps		1	1
Soft Drink Carbonators			3
Toilet Tanks			6
Water Treatment Chemical Contaminated		1	

CONTAMINATION OF THE FIRE SYSTEM DURING SUMMER OF 1984

LRT station personnel complained about smelly, grey and bad tasting water. Some people developed stomach problems. When the Edmonton Water and Sanitation Department was alerted about the situation; the water samples were taken. The Lab results showed presence of polyproperlene glycol in the water.

The investigation of the system showed that the three check valves installed on the system were all leaking. The installation of the proper backflow preventive device (double check valve) cleared up the problem.

HIGH RISE OFFICE TOWER WATER CONTAMINATED BY FIRE SYSTEM

September of 1988 occupants of a high rise office building in Edmonton complained of brown water flowing from the faucets throughout the building.

The Cross Connection Control Inspector found that the domestic water pump had been taken out of service for repairs. The piping between the fire system and the domestic water supply was arranged in such a way that it allowed either pump to serve both systems when a bypass valve was turned on. A single wafer check valve failed to contain the contaminants in the fire system; as a result, the fire pump contaminated the domestic water system.

The inspector recommended that the systems be separated and a Double Check Valve Assembly be installed in the water lines serving both the domestic cold water system and the fire system.

FIRE SYSTEM CONTAMINATES DEPARTMENT STORE'S WATER SYSTEM

In May of 1989 occupants of a department store in one of Edmonton's shopping malls complained of brown water coming from faucets throughout the store.

The Cross Connection Control Inspector found that the alarm check valve, in the fire system, had gone off on several occasions when the City water pressure had been disrupted.

Water samples indicated turbidity and iron content higher than normal. Water samples from neighbouring stores were normal.

The owner of the building was asked to install a D.C.V.A. in the water line supplying the fire system.

FIRE SYSTEM CONTAMINATES WATER SUPPLY IN LRT STATION

In July of 1989 a call from one of Edmonton's light transit station indicated that a yellowish, oily water was observed in the public washrooms.

It was learned that a maintenance crew had used a fire hose to flush out a sewer line shortly before the incident occurred. The line to the fire hose was separated by a 4 inch ULC approved wafer check valve on the fire stand pipe and two 8 inch ULC approved wafer check valves on the header of the sprinkler system. All three valves on inspection were found to have deposits which prevented the valves from closing tight.

The inspector recommended a R.P. be installed in the water line supplying the system as glycol was used in the stand pipe.

NEWLY INSTALLED FIRE SYSTEM CONTAMINATES WATER SUPPLY

In August of 1989 a printing shop owner complained of brown in the washrooms and to their equipment. The owner mentioned that the contamination appeared each time the tire warehouse next door tested their fire pump.

The inspector found that the newly installed fire system was protected by a ULC wafer check valve.

The owner was instructed to install a D.C.V.A. in the water line to the fire system. After the D.C.V.A. was installed no further complaints were recorded.

DRINKING FOUNTAIN CONNECTED TO FIRE LINE

In October of 1989 the Edmonton Board of Health and the Cross Connection Control Office were called to investigate a complaint of contaminated water supplying a drinking fountain. The inspector found that black iron pipe had been piped to supply the fire hose cabinets as well as a drinking fountain and a sink. The building were the drinking fountain and sink were located was used sparingly. This caused build up of contaminants. Plants officials were requested to repipe the domestic water fixtures with potable water carrying material to a point upstream of the black iron pipe. A D.C.V.A. was also requested on the line supplying the fire hose cabinets.

FIRE SYSTEM SUSPECTED OF CONTAMINATING WATER SUPPLY

In February of 1990 a printing shop experienced a rusty coloured water coming from the taps. It was strongly suspected that the fire system was a contributing factor which precipitated the complaint, however, it could not be substantiated.

A D.C.V.A. was recommended to be installed in the water line supplying the fire system.

LIGHT TRANSIT STATION FIRE SYSTEM CONTAMINATES WATER SUPPLY

In April of 1991 a light transit station experienced problems with the water in the staff washrooms and in the janitor's room. Inspection of the facility found that the fire system header was separated from the domestic water system by a single ULC 8 inch check valve. Examination of the check valve found that rust build up kept it 3/4 inch ajar.

Water samples taken to an independent laboratory had the following results: CO3 (mg/l) 4320, Fe (mg/l) 0.99, Pb (mg/l) 0.39, P (mg/l) 1240, Na (mg/l) 5060, Cl (mg/l) 697.9.

Water samples taken from buildings on either side of the station were normal.

A D.C.V.A. was recommended installed in the water line supplying the fire system.

PUT AN END TO "BLACK WATER COMPLAINTS"

In 1977 in Portland, Oregon, a 16 inch downtown water main was accidentally ruptured. Water flowed from the break for over six minutes lowering the area water pressure by 46 pounds per square inch. In a four hour period after the break over 200 calls were received by the city water department complaining of black water, objectionable odor or taste of water.

Seven years later in Portland a 16 inch city water main was ruptured just four blocks from the previously mentioned break. Area water pressure again dropped by 46 PSI. Not a single complaint of black water, odor or taste was received.

What made the difference? A BACKFLOW PREVENTION PROGRAM was instituted for all unmetered fire sprinkler lines in the City of Portland during the intervening seven year period.

Bill Preble, Lead Water Quality Inspector for the City of Portland and Chairman of the Pacific Northwest Section of the AWWA Cross Connection Committee comments "I feel there is a direct relationship to backflow prevention devices being installed in all our unmetered fire sprinkler systems and zero complaints received with the later water main break."

Samples of the water taken during the 1977 break suggested the contamination was coming from fire sprinkler lines in the area. At the time of the break sprinkler systems usually included only an alarm check and gate valve. The Portland Water Bureau Manager became convinced this was not adequate protection from backflow. A program was initiated in the City of Portland to require that all unmetered fire sprinkler systems be equipped with backflow prevention devices.

The results were impressive. In August of 1984 a 16 inch water main was ruptured by a contractor's crew just blocks from the 1977 break site. Result---no complaints of black water, taste or odor problems. In January 1985, a 16 inch water main was ruptured and one month later a 12 inch water main was ruptured in the same area and not a single water quality complaint was received. "Our backflow prevention program has put a handle on the black water complaints," states Bill Preble.

The Portland experience proves the application of a cross connection control program covering fire sprinkler systems was a valuable addition to backflow prevention in their city.

(Reprint of an article taken from "Febco Industry Newsletter, Vol 2, 1985".)

DATE OF OCCURRENCE .....June, 1979

LOCATION .....Meridian, Idaho

SOURCE OF INFORMATION ....Department of Health and Welfare,
State of Idaho

SUMMARY:

The backsiphonage of "stagnant water" containing high bacterial counts occurred from a fire sprinkler system through a leaking alarm check valve.

DETAILS:

On June 18th, 1979 the residents of the City of Meridian, Idaho reported that their water supply had an odor and taste of onions. During this period, the city was routinely flushing fire hydrants throughout the area involved. As with the complaints, the odor would occur but a consistant pattern could not be determined. The city's water system is supplied by four wells and a 500,000 gallon storage tank which rides on the system. The wells have an alternating pumping schedule and the water system is looped. This arrangement had a contributing affect on the odor occurance.

By isolating portions of the water system, and conducting a premise by premise inspection, the source of the contamination was narrowed to one area containing a supermarket, car wash and a church printing firm. The nearest fire hydrant was flushed and the odor became very strong. The final inspection revealed that the alarm check valve on the fire sprinkler system in the supermarket was leaking. When the city water pressure was reduced during hydrant flushing, the alarm check clapper would leak, but the clapper would not open enough to set off the alarm. When the service was turned off to the supermarket, the odor and taste problem did not occur during hydrant flushing. Water samples taken from the sprinkler system identified Clonothrix fusa and Zoogleora ramigera bacteria in sufficient concentration that would cause the onion taste and odor problem.

ATTACHMENT 2

Chapter 6

Backflow Prevention and Fire Protection

Like other situations encountered in cross-connection control, the degree of backflow protection necessary for a particular fire-protection system will depend on specific conditions present. Generally, it is recommended that the potable water supply be protected when serving fire systems. Guidelines given in this chapter pertaining to fire booster pumps should also be noted.

The responsible authority may recognize the use of alarm checks, single checks, or detector check meters for certain limited installations, such as fire protection piping systems serving buildings not greater than three stories with no auxiliary source of water supply and no use of chemical additives. It is important to note that none of these check valves can be considered acceptable backflow preventers.

The responsible authority could require more protection depending on the particular circumstances. A reduced-pressure assembly may be installed within system piping to isolate only that portion of the system containing the antifreeze solution.

Pressure losses across backflow-prevention assemblies do occur. This loss must be accounted for in the design or redesign of the fire protection system, if it is to function properly. This factor is particularly important when assemblies are added to existing fire-protection systems.

6.1 FIRE HYDRANTS

Northern area water utilities have been known to add chemical solutions to their fire hydrants for freeze protection. These compounds include substances, such as ethylene glycol and calcium chloride. The substances are unacceptable from a public health standpoint because they are toxic. This practice cannot be condoned. Water utilities should repair leaking hydrant valves and pump out hydrants after use. Hydrant drains should not be connected to the sewer.

Fire Systems

An approved backflow prevention assembly shall be installed on each fire service connection to any premise where there is an actual or potential danger of contamination to the potable water systems.

The National Fire Protection Association (NFPA) publish the "National Fire Codes" which are composed of codes, standards, and recommended practices; the following statement is an excerpt from these codes which reads: "Where connections are made from public waterworks systems, it may be necessary to guard against possible contamination of the public supply. The requirements of the public health authority having jurisdiction shall be determined and followed."

Private fire protection may consist of dry or wet sprinkler systems, pumper or siamese connections, booster pumps, standpipes and water mains with fire hydrants, etc. Because fire protection systems may constitute varying degrees of hazard, each system should be individually assessed by local authorities to determine the type of backflow prevention required.

For this reason local water purveyors shall be consulted prior to installing a fire system. Some of the water purveyor's concerns with private fire systems are:

1. The growth of offensive micro-organisms which can create taste and odour problems.
2. Leaching of heavy metals such as zinc, cadmium, iron or lead into water which stands in pipelines for long periods of time.
3. The addition of corrosion inhibitors or antifreeze compounds to protect the piping systems.
4. Dry systems containing compressed air.
5. A loss of pressure on the public water supply main or an increase in pressure on the consumer's system which would allow water from these systems to enter the public supply.

The purveyor may require a detector meter to be installed on the system to detect any unauthorized use or leakage within the system. This can be accomplished by the use of a single detector check or detector double check valve assembly.

FIRE SYSTEM HAZARD

Protection Recommended:

The following is a guide for the application of backflow prevention assemblies on the various protection systems.

FIRE SYSTEM HAZARD	RECOMMENDED PROTECTION
Moderate Hazard	
. All wet and dry fire systems (Sprinkler or Standpipe)	Double Check Valve Assembly or Detector Double Check Valve Assembly
Severe Hazard	
. all foamite installations . all fire systems containing antifreeze . fire systems with a pumper connection within 518 metres (1700 ft.) of an auxiliary water supply or permanently connected to an auxiliary water system. . fire systems where chemical additives are injected by the owners, maintenance or plumbing personnel, or the fire department, etc.	Reduced Pressure Principle Backflow Prevention Assembly

NOTE: The effects of the head loss of a backflow prevention assembly must be considered when installing a backflow preventer. All backflow preventers installed on fire systems shall be approved by the foundation for Cross Connection Control and Hydraulic Research, USC (for approved equal). All shut off valves shall be approved indicating valves (i.e. OS & Y Valves).

CodeWatch

Spring 1991

Gene B. Endthoff, Editor

NFPA 101 Upgrades Sprinkler Requirements

The 1991 edition of the Life Safety Code, issued by the National Fire Protection Association (NFPA) Standards Council on January 31, 1991, contains substantially stronger requirements for automatic sprinkler systems. As compared to the current 1988 edition of the Code, new requirements include:

- Mandatory sprinkler systems throughout all new health care occupancies.
- Mandatory sprinkler systems throughout all new board and care facilities.
- Mandatory sprinkler systems throughout all new lodging and rooming houses.
- With few exceptions, mandatory sprinklers in new hotels, motels, dormitories, and apartments.

These new requirements build on significant advances made in the 1988 edition, including a requirement for mandatory sprinkler systems in all new high-rise buildings.

The new 1991 edition has been published by the NFPA with a note that several appeals to the Board of Directors are still under way. The most notable is a joint appeal by the National Electrical Manufacturers Association, the Automatic Fire Alarm Association, and the Fire Marshal's Association of North America, dealing with requirements for smoke detectors in patient rooms and related areas. The 1991 edition of NFPA 101 does not require smoke detectors connected to the building electrical service if the patient rooms are equipped with quick response or residential sprinklers. While previous editions of the Life Safety Code likewise did not require detectors within patient rooms, the proponents had been successful in achieving majority support for such a code change among those voting at the 1990 NFPA Fall Meeting in Miami, Florida in November.

NFPA 1 Fire Prevention Code Slips Cycle

Originally scheduled to report at the May 1991 Annual Meeting of the National Fire Protection Association, the NFPA Fire Prevention Code Committee has decided to slip a cycle and report instead at the 1991 Fall Meeting in November. The additional time was requested in order to allow the Committee to process a large number of public comments on the NFPA 1 Fire Prevention Code, many of which related to controversial proposals for sprinkler systems in single-family dwellings and for sprinkler retrofit of high-rise buildings.

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NATIONAL FIRE SPRINKLER ASSOCIATION, INC.

BOCA Signals Problems With 1992 Supplements

The Building Officials and Code Administrators International (BOCA) began its hearings in preparation for the 1992 supplement to the National Building and Fire Codes in Oklahoma City, Oklahoma, on April 8-12, 1991. Some problems are expected for the sprinkler industry.

The NFSA had prepared several change proposals that were considered among more than 600 submitted. The fire sprinkler industry also had input into a number of proposals submitted by the Fire Prevention Ad Hoc Committee.

While favorable action was recorded on a number of issues of significance to the sprinkler industry, three major decisions are of concern:

1. A proposal to require backflow protection devices on most steel pipe sprinkler systems was tentatively accepted in the Plumbing Code.

2. A proposal to adopt earthquake protection provisions which would be more severe than NFPA 13 with regard to bracing of branch lines was tentatively accepted in the Building Code.

3. A proposal to reduce the sprinkler requirements for low-rise multi-family occupancies was tentatively accepted in the Building Code.

More information on these subjects will be provided in the future, as NFSA prepares challenges to be considered at the next BOCA code changes meeting scheduled for September of 1991, in Indianapolis.

New Standard Codes Include Sprinkler Gains

New 1991 editions of the Standard Codes are scheduled to be available in April of 1991, replacing the 1988 editions and their 1989 and 1990 supplements. The codes are published by the Southern Building Code Congress International (SBCCI) and are used throughout much of the Southeast and Southwest.

The 1991 editions of the Standard Building and Fire Codes incorporate changes made at the final code hearings in New Orleans, October 1-5, 1990. Major gains in sprinkler requirements include mandatory sprinkler systems for all residential high-rise buildings over 75 feet in height, all "special amusement" buildings, and all Group R1 and R2 residential occupancies (hotels, motels and apartments) three or more stories in height.

Other changes of interest to the sprinkler industry include action on the following sections of the Building Code:

412.2.7 - Clarification that fire suppression in aircraft hangars must comply with NFiPA 409.

506.4 - Addition of fire pump display information to central control station.

509.1.1 - Clarification that sprinklers are required in all HPM (hazardous product manufacturing) facilities.

702.4.2 - Permission for non-rated corridors for single tenant spaces when buildings are sprinklered.

703.2 - Exemption of access panels in windowless buildings that are sprinklered.

901. 2 - Clarification that trade-offs for sprinklers apply only to buildings with an NFPA 13 system.

1001.3 - Allowance of penetrations of sprinklers through rated ceilings without sealant.

ICBO Starts Work on 1994 Edition of Uniform Building Code

At the first hearing report, February 6-10, 1991, in Austin, Texas, the International Conference of Building Officials (ICBO) took the initial steps in a three-year process. The process will lead to the publication of the Uniform Building Code in 1994. Some 270 proposals were considered by the various committees at these hearings. The following items were of interest to the fire sprinkler industry:

402 - Approved as revised. Adds the BCMC proposal for special amusement buildings to the UBC. All of these buildings will be sprinklered.
702 - Approved as revised. Clarifies that the requirement for area separation walls allows a trade-off for sprinklers.
1702 - Approved. Prevents the use of fire separation walls from circumventing sprinkler requirements.
3802 - Denied. NFSA's proposal on school sprinklers. Should be passed at next hearing when revised to meet committee requests.
3802 - Denied. NFSA's proposal on three-story apartment buildings. Should be passed at next hearing when revised to meet committee requests.
3803 - Approved. Will require a water flow alarm on the inside as well as on the outside of sprinklered buildings.
3806 - Approved. Increases the flow requirement from 75 gpm to 500 gpm on temporary standpipes.
4304 - Denied. NFSA's proposal to allow sprinkler penetrations of fire rated assemblies. Should be passed at next hearing when revised to meet committee requests.

UPC Subcommittee Rejects AWWA M-14 Backflow Concept

At its January 10-11, 1991 meeting in Ontario, Canada, the Uniform Plumbing Code Water Distribution Subcommittee failed to endorse the provisions of American Water Works Association Manual M14 on backflow protection of sprinkler systems. NFSA's proposal on AWWA M14 had been moved for further study by the Plumbing Code Committee at this meeting. Officially, the Water Distribution Committee turned down the proposal for the following reasons:

1. The latest edition of the UPC contains requirements for separating potable water systems (plumbing) and other water supply systems. A fire sprinkler system is not considered plumbing and therefore would be required to provide an approved separation assembly. Sprinkler piping and/or devices, not listed and approved as plumbing materials, cannot be used in a plumbing system.

2. The minimum separation allowed is an approved double check valve backflow prevention device.

3. Fire sprinkler system supplied from a separate fire service underground are also not considered plumbing. Therefore the water supplier would specify the type of protection to be used. The plumbing code should not contain specifications for something not considered plumbing.

The Committee agreed in principle to the AWWA M14 protection requirements except for use of the single check valve on Class 1 and 2 systems. They were also not willing to accept two check valves in lieu of the double check valve assembly. The Committee further requested that new language be developed for the Code concerning residential sprinkler systems. They appear to be concerned with partial systems, those with less than 20 sprinklers and 13D systems, unless all of the materials used comply with the plumbing code.

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Building Standards Branch
Ministry of Municipal Affairs, Recreation and Culture

B.C. Plumbing Code Change Forum

The public Plumbing Code change forum will precede the Plumbing Inspectors Association of British Columbia (P.I.A.B.C.) annual conference. It is planned that the forum will be a one day session followed by two days of technical meetings organized by the P.I.A.B.C. If you wish to attend the Plumbing Inspectors Conference as well , information regarding fees and seminar topics may be obtained from the P.I.A.B.C. at the address noted below.

DATE: OCTOBER 17,1991

TIME: 9:00 A.M. to 5:00 P.M.

LOCATION: EXECUTIVE INN HOTEL
7211 WESTMINSTER HIGHWAY
RICHMOND B.C.
PHONE & FAX NO: 278-5555

COST: COMPLIMENTARY COFFEE AND SANDWICH LUNCHEON PROVIDED BY BUILDING STANDARDS BRANCH FOR REGISTERED PARTICIPANTS

Pre-registration is requested by use of this form.

REGISTRATION

NAME: ----------

ADDRESS: ----------

POSTAL CODE: ----------

REPRESENTING: ----------

PHONE NUMBER: (BUSINESS) ----------

FAX NO: ----------

I WILL BE ATTENDING PUBLIC FORUM (SIGNATURE) ----------

PLEASE REMIT TO: P.I.A.B.C.
4771 CABOT DRIVE
RICHMOND B.C. 47C 4J5